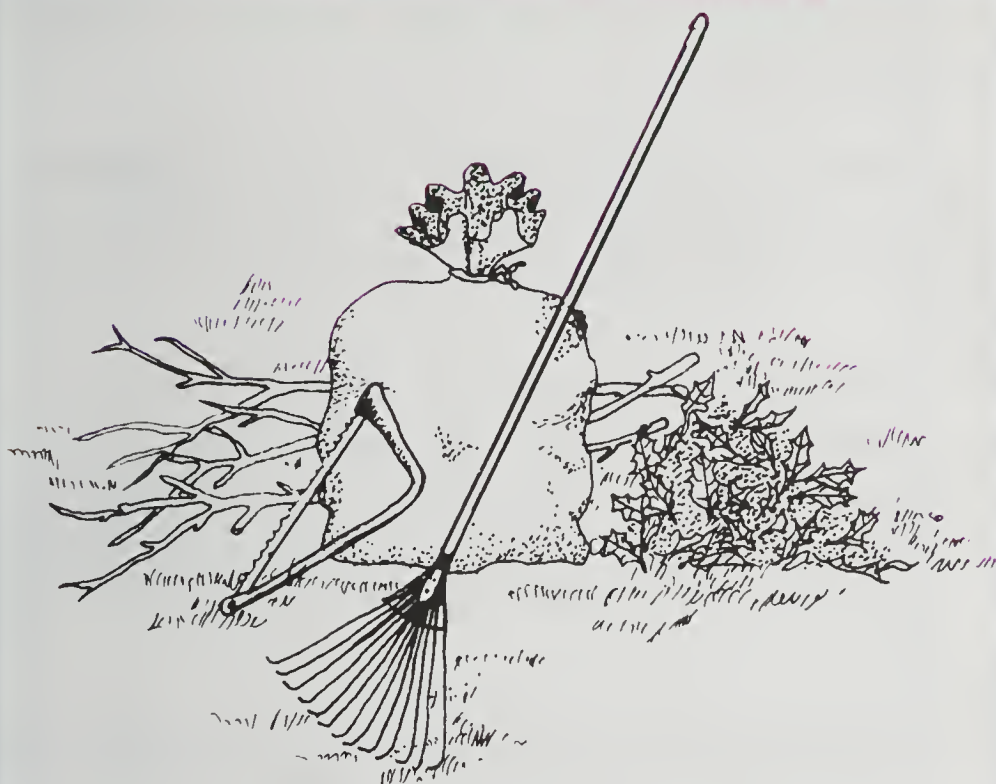


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Consumer's Guide to Recycling
YARD WASTES

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**How to improve the health
and quality of your yard
and garden by using**

✓ **Grass Clippings**

✓ **Leaves**

✓ **Woodchips**



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On average, yard waste accounts for 18 percent of all the material buried in Illinois landfills each year. During the summer and fall months, yard waste can amount to 50 percent or more of residential trash (with collection and disposal costs at about \$90 per ton!).

Illinois is fast running out of landfill space. Yard waste not only uses up this valuable space, but contributes to methane gas and leachate problems, as well. Yard waste also makes incinerators less efficient because of its high moisture content. So, keeping your yard waste out of the garbage truck saves money and protects the environment.

HOW TO USE YARD WASTES

Grass Clippings

- Leave them on the lawn
- Mulch
- Compost

Leaves

- Mulch
- Compost

Wood Chips

- Mulch
- Pathways

WHY BAG YOUR GRASS CLIPPINGS?

After all, lawn care is hard work. And bagging your lawn clippings is one of the most time-consuming parts of the job. Sure, your lawn looks great afterwards. but, the bigger your lawn, the more clippings, the more trash bags and the more exhausting the process.

Now consider for a moment not bagging your grass. Gone are the hassles of stopping every few minutes to empty the mower bag, raking, and wrestling with expensive trash bags. Instead, your clippings are working their way back into the soil.

You may say, not bagging your grass is unhealthy for your lawn, will cause excessive thatch buildup and kill your lawn.

The fact is, clipping collection is not necessary. Clippings are often thought to contribute to thatch build-up. This is not the case. Thatch is primarily composed of turfgrass roots, crowns, rhizomes, and stolons. These plant parts contain large amounts of lignin which decomposes slowly. Grass clippings are mostly water, they contain little lignin and decompose quickly.

Clippings contain the nutrients your lawn needs to grow. In as little as 14 days, clippings release nutrients back into the soil. Every garbage bag of grass clippings contains up to 1/4 pound of usable organic nitrogen. You can reduce your fertilization costs by recycling lawn clippings back into the lawn.

HOW TO RECYCLE GRASS CLIPPINGS:

Successfully recycling grass clippings back to your lawn requires only the kind of attention all lawns should have on a regular basis.

- Mow when your grass is dry and 3" to 4" tall. Never cut it shorter than 2" to 2 1/2 " in height. This height will allow

your lawn to have a larger and deeper root system, making a stronger defense against weeds and droughts.

- Use a sharp mower blade (a mulching mower is not necessary). A sharp blade and frequent mowing will mean finer clippings that will decompose quickly.
- Avoid over-fertilizing your lawn. If it becomes too dense with growth, your clippings won't reach the soil to decompose.
- Limit the use of lawn chemicals. Save money and allow soil organisms to thrive and return nutrients to the soil by decomposing grass clippings. Only apply chemicals when lawn problems have been correctly diagnosed.
- Grass selection can affect thatch build-up. The following is a list of grasses from the least to the most thatch forming: fine fescue, perennial ryegrass, tall fescue, Kentucky bluegrass and zoysia grass.

MULCHING TIPS

Grass Clippings can be spread in thin layers over vegetable and flower beds, or mixed with leaves and spread in a thin layer.

Leaves of deciduous trees and shrubs can be spread around shrubbery in the fall.

Wood Chips can be used around trees and shrubs or to make a good-looking, long-lasting path.

Check with local authorities for ordinances that maybe in effect.

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THE BENEFITS OF REUSING YARD WASTES

Mulching:

Mulch reduces evaporation from the soil surface, controls weeds, and keeps soil temperatures from becoming too hot or too cold. Mulch also protects sloping ground from soil erosion and it stops soil crusting of wet soils as they dry out.

In addition, mulch improves soil conditions for earthworms and other soil organisms that are necessary for a healthy soil environment. When organic mulches break down, they provide nutrients necessary for plant growth.

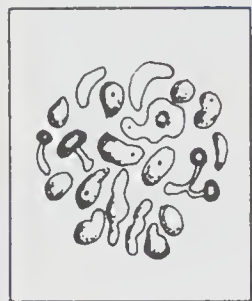
Composting:

Composting is the controlled decomposition of organic materials using aerobic bacteria. The composting process reduces material volume by 70-80 percent. By using compost you return organic matter to the soil in a usable form. Organic material in the soil improves plant growth by loosening heavy clay soils, which allows better root penetration; by improving the capacity to hold water and nutrients in sandy soils; and by adding essential nutrients to any soil. Improving your soil is the first step toward improving the health of your plants. Healthy plants help clean our air, conserve our soil and beautify our landscapes.

Other Savings:

- Fewer trash bags to buy
- Reduces water usage
- Reduces the need to purchase soil conditioners

THE ESSENTIALS OF COMPOSTING



Biological Process

The compost pile is really a teeming microbial farm. Bacteria, the most numerous and effective composters, are the first to break down plant tissue. Fungi and protozoans soon join the bacteria and, somewhat later in the cycle, centipedes, millipedes, beetles and earthworms do their parts.



Materials

Anything growing in your yard is potential food for these tiny decomposers. Microorganisms use the carbon in leaves or woodier wastes as an energy source. Nitrogen provides the microbes with the raw element of proteins to build their bodies.

Everything organic has a ratio of carbon to nitrogen (C:N) in its tissues. The following table can help you judge the ratio of your compost ingredients.

Carbon : Nitrogen Ratio

Grass clippings	20:1
Leaves	60:1
Wood	700:1
Sawdust	500:1
Fruit and	35:1
Vegetable wastes	
Straw	80:1
Rotted Manures	20:1

A C:N ratio of 30:1 is ideal for the activity of compost microbes. This balance can be achieved by mixing two parts grass clip-

pings with one part leaves. This combination is the "backbone" of most compost systems.



Surface Area

The more surface area the microorganisms have to work on, the faster the materials decompose. Chopping your garden wastes with a garden tool, or running them through a shredding machine or lawnmower, will speed their decomposition.



Volume

A large compost pile will insulate itself and hold the heat of microbial activity. Its center will be warmer than its edges. Piles smaller than 3 feet cubed (27 cu. ft.) will have trouble holding this heat, while piles larger than 5 feet cubed (125 cu. ft.) don't allow enough air to reach the microbes at the center. These proportions are of importance only if your goal is a fast, hot compost. Slower composting requires no exact proportions.



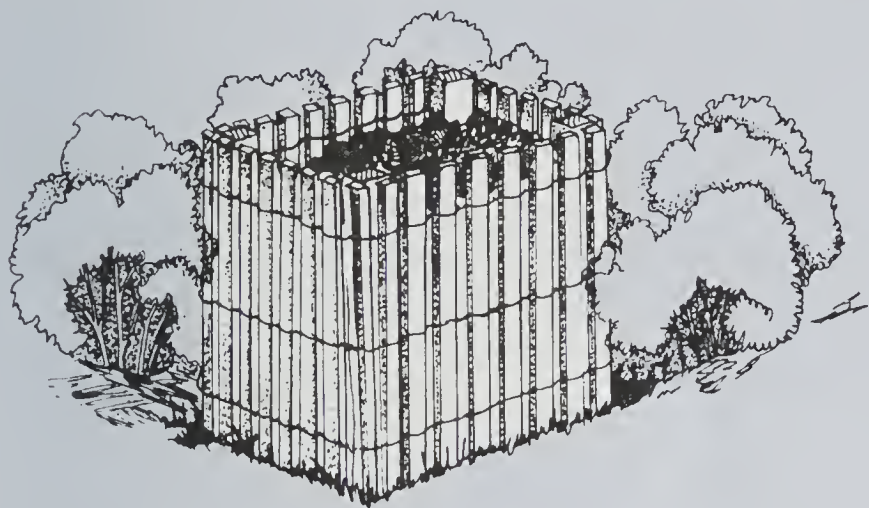
Moisture and Aeration

All life on Earth, including compost microbes, needs a certain amount of water and air to sustain itself. Microbes function best when the compost heap has many air passages and is about as moist as a wrung out sponge. Extremes of sun or rain can adversely affect this moisture balance.

FOUR BINS TO BUILD

Snow Fence Bin

Bins made with prefabricated snow fencing are popular because they are simple to make and easy to move and store. To build this bin, buy the appropriate length of prefabricated fencing and fasten to two-by-fours (2x4s) used for the corners.



Woven Wire Bin

One easy-to-make, economical container requires only a length of woven wire fencing or snowfence. Multiply the diameter you want for the compost pile by 3.2 to determine the length of fencing to buy. Fasten the ends with wire or with three or four small chain snaps (available at any hardware store) to make a circle.



Block or Brick Bin

Compost bins can be made with bricks or cement blocks. Just lay the blocks without mortar, leaving spaces between each block to permit aeration. Stack them to form three sides of a square container. This type of bin is sturdy, durable and easily accessible.

HOW TO MAKE COMPOST

Here are the basics:

Remove grass and sod cover from the area where you will construct your compost pile to allow materials direct contact with soil microorganisms. The following "recipe" for constructing your compost heap is recommended for best results:

1st layer: 3"-4" of chopped brush or other coarse material on top of the soil surface allows air circulation around the base of the heap,

2nd layer: 6"-8" of leaves, grass clippings, sawdust, etc. Materials should be "sponge damp". Since most finished yard waste compost has a slightly alkaline pH you may want to sprinkle sulfur over the heap to increase its acidity.

3rd layer: 1" of soil serves as an inoculant by adding microorganisms to the heap. This layer is not necessary since the inoculum needed for composting is usually present; however, it will help to speed the composting process

4th layer: 2"-3" of manure or a handful of commercial fertilizer to provide the nitrogen needed by microorganisms. Add water if the manure is dry.

5th layer: Repeat steps 1-4 until the bin is almost full. Top off the heap with a 4"-6" layer of straw and scoop out a "basin" at the top to catch rain water.

A properly made heap will reach temperature of 140° - 160° in four to five days. At this time, you'll notice the pile "settling", a good sign that your heap is working properly. Initially the pH of the compost pile will be very acidic, 4.0-4.5, however as the process nears completion the pH rises to approximately 7.0-7.2.

After five to six weeks, fork the materials into a new pile, turning the outside of the old heap

into the center of the new pile. Add water if necessary. You shouldn't need to turn your heap a second time. The compost should be ready to use within three to four months. A heap started in late spring can be ready for use in the autumn. Start another heap in autumn for use in the spring.

You can make compost even faster by turning the pile more often. Check the internal temperature regularly; when it decreases substantially (usually after about a week), turn the pile.

Compost is ready to use when it is dark, brown, crumbly, and earthy smelling. Let it stabilize for a few extra days and screen it through a 1/2" screen if you want the finest product. Turn your soil, apply 1"-3" layers of compost, and work it in well.

The following trouble shooting chart is a guide to more efficient composting.

<i>Symptoms</i>	<i>Problem</i>	<i>Solutions</i>
The compost has a bad odor.	Not enough air.	Turn it, Add dry material if the pile is too wet.
The center of the pile is dry.	Not enough water.	Moisten and turn the pile.
The compost is damp and warm only in the middle.	Too small.	Collect more material and mix the old ingredients into a new pile.
The heap is damp and sweet-smelling but still will not heat up.	Lack of nitrogen.	Mix in a nitrogen source like fresh grass clippings, manure or fertilizer.

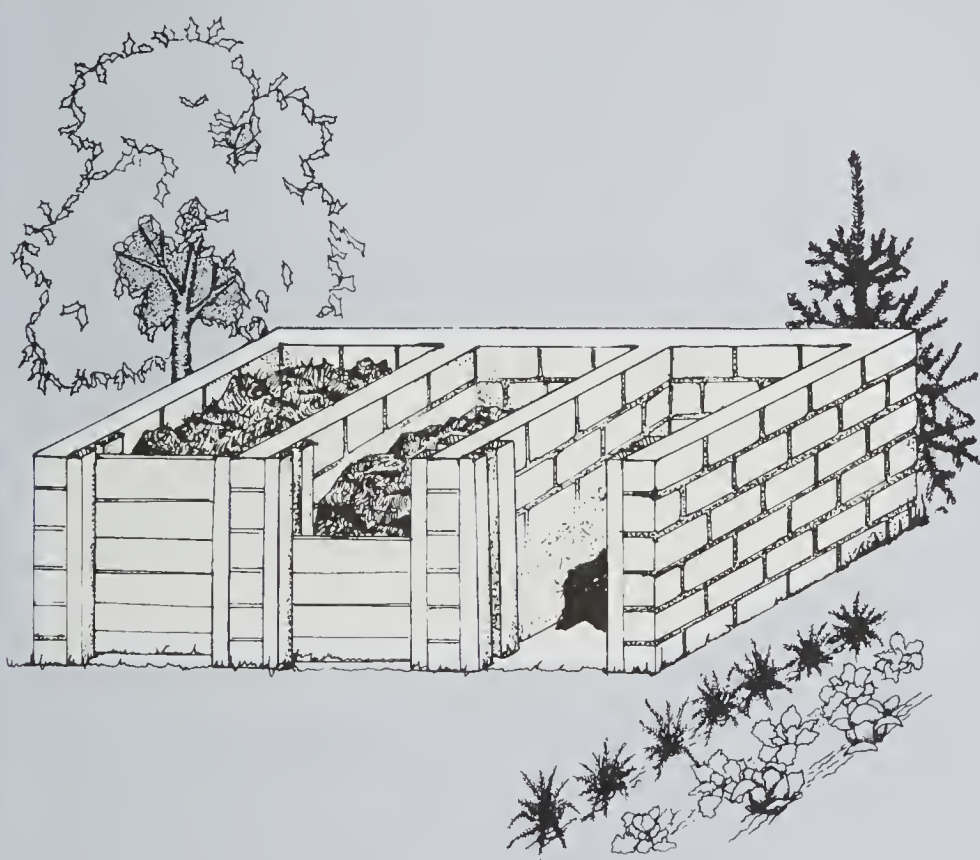
Wooden Bin

Covered wooden bins allow convenient protection from pests and heavy rains. Construct bins with removable fronts or sides so that materials can be easily turned. Old wooden pallets can be used for construction. Wire mesh can be used on the sides to increase air flow.

Prefabricated compost bins can be purchased through most gardening catalogues.

Turning Bins

This is a series of three or more bins that allows you to make compost in a short time by turning the materials on a regular schedule. Turning bins are most appropriate for gardeners with a large volume of yard waste and the desire to make a high quality compost. You can also turn your compost with only one bin. Simply remove the bin from around the pile when it's time to turn it, set up the empty bin nearby, and fork the material back into it.





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**Office of Solid Waste
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